IN THE CLAIMS:

Please cancel claims 8-12, and amend claims 1-7 and 13-19, as shown below in the detailed listing of all claims which are, or were, in the application.

1. (Currently amended) An *in vitro* diagnostic method for quantification of a clinical chemistry analyte from a clinical sample wherein the clinical chemistry analyte

a) undergoes a chemical reaction or reactions with a reagent or reagents in one or several steps, or in a reaction sequence, or

b) catalyses a chemical reaction, or reactions, or a reaction in a reaction sequence of a reagent or reagents, in one or several steps;

in a reaction system, said reaction or reactions or reaction sequence resulting in a change of a measurable property of a compound or compounds of said reaction or reactions or reaction sequence ~~**characterized** in that~~ wherein

i) said chemical reaction or reactions or reaction sequence results in

- formation of a two-photon fluorescent compound, or

- a change in two-photon fluorescence properties of the reaction system comprising at least one two-photon fluorescent compound; and

ii) said analyte is quantified by exciting said two-photon fluorescent compound or compounds and measuring two-photon exited fluorescence, and relating said measured fluorescence to method standardization data based on measurements obtained from reference material of said analyte.

2. (Currently amended) The method of claim 1, **characterized** ~~in that it~~ wherein said method comprises the steps of

a) bringing the clinical sample comprising the clinical chemistry analyte in contact with a specific assay reagent or reagents;

b) allowing, in the reaction system, said analyte to undergo a chemical reaction with said reagent or reagents, or allowing said analyte to catalyze a chemical reaction or reactions of said reagent or reagents;

c) optionally repeating steps a) and b) one or several times;

d) said reaction or reactions of step or steps b) resulting in formation of a two-photon fluorescent compound, or resulting in a change in two-photon fluorescence properties of said

reaction system comprising at least one two-photon fluorescent compound; and

e) quantifying said analyte by exciting said two-photon fluorescent compound or compounds, measuring two-photon excited fluorescence, and relating said measured fluorescence to method standardization data based on measurements obtained from reference material of said analyte.

3. (Currently amended) The method according to claim 1, **characterized** ~~in that the~~ wherein fluorescence resulting from two-photon fluorescence excitation is measured kinetically.

4. (Currently amended) The method according to claim 1, **characterized** ~~in that the~~ wherein fluorescence resulting from two-photon fluorescence excitation is measured as an end-point signal.

5. (Currently amended) The method according to claim 2, **characterized** ~~in that the~~ wherein quantification of the clinical chemistry analyte is carried out for several samples by repeating the steps a) to e) for each sample.

6. (Currently amended) The method according to claim 2, ~~**characterized** in that~~ wherein several clinical chemistry analytes are quantified by repeating the steps a) to e) for each analyte.

7. (Currently amended) The method according to claim 1, ~~**characterised** in that~~ wherein the clinical chemistry analyte or analytes are selected from the group consisting of albumin, total protein, hemoglobin, ammonia, carbonate, bilirubin direct, bilirubin total, calcium, chloride, iron, magnesium, phosphate, cholesterol HDL, cholesterol LDL, cholesterol total, creatinine, fructosamine, glucose, lactate, triglycerides, urea, uric acid, acid phosphatase, alkaline phosphatase, alanine aminotransferase, aspartate aminotransferase, amylase pancreatic, amylase total, cholin esterase, creatine kinase, glutamyl transferase, glutamate dehydrogenase, hydroxybutyrate dehydrogenase, lactate dehydrogenase and lipase.

Claims 8-12. (Canceled)

13. (Currently amended - Withdrawn) A system for *in vitro* diagnostic quantification of at least one clinical chemistry

analyte from a clinical sample or samples, **characterized** ~~in that~~ wherein the system comprises

a) a fluorometric device employing two-photon excited fluorescence for quantifying one or several clinical chemistry analytes, and

b) a data processing unit with software for dedicated data reduction for said quantification of said analyte or analytes using said fluorometric device, wherein said quantification of one or more of said analytes comprises one or more chemical reactions resulting in formation of at least one two-photon fluorescent compound, or a change in two-photon fluorescence properties of the reaction system comprising at least one two-photon fluorescent compound.

14. (Currently amended - Withdrawn) The system of claim 13, **characterized** ~~in that it comprises~~ further comprising test cuvette magazines holding the sample tubes and test cuvettes.

15. (Currently amended - Withdrawn) The system of ~~claim 13,~~ **characterized** ~~in that it comprises~~ claim 14, further comprising a

dilutor dispenser for diluting the sample and for dispensing it into the test cuvette.

16. (Currently amended - Withdrawn) The system of ~~claim 13,~~ **~~characterized~~** ~~in that it comprises~~ claim 15, further comprising mechanics for moving the test cuvettes and/or the dispensing head.

17. (Currently amended - Withdrawn) The system of according to claim 13, **~~characterized~~** ~~in that it comprises~~ further comprising a control unit for automatic control of the system.

18. (Currently amended - Withdrawn) A software product for a diagnostic quantification system according to claim 13, **~~characterized~~** ~~in that~~ wherein the software product comprises means for controlling a processing unit of the quantification system to execute or control a step of quantifying said analyte by exciting said two-photon fluorescent compound or compounds, measuring two-photon excited fluorescence, and relating said measured fluorescence to method standardization data based on measurements obtained from reference material of said analyte.

19. (Currently amended - Withdrawn) The software product according to claim 18, **characterized** ~~in that it additionally comprises~~ further comprising means for controlling the processing unit of the quantification system to execute or control any combination of one or more steps a) to d)

a) bringing the clinical sample comprising the clinical chemistry analyte in contact with a specific assay reagent or reagents;

b) allowing, in the reaction system, said analyte to undergo a chemical reaction with said reagent or reagents, or allowing said analyte to catalyze a chemical reaction or reactions of said reagent or reagents;

c) optionally repeating steps a) and b) one or several times;

d) said reaction or reactions of step or steps b) resulting in formation of a two-photon fluorescent compound, or resulting in a change in two-photon fluorescence properties of said reaction system comprising at least one two-photon fluorescent compound.